REMARKS

Claims 1-9 and 15-19 are canceled without prejudice and subject to applicnat's right to file a divisional application for this subject matter.

Claims 5-9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shizuko (JP11-241107A) in view of Wang ("Preparation of Pd-Pt Bimetallic Colloids with Controllable Core/Shell Structure"). This ground of rejection is obviated by the above claim cancellation.

Claims 10 and 12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shizuko (JP11-241107A) in view of Wang ("Preparation of Pd-Pt Bimetallic Colloids with Controllable Core/Shell Structure"). This ground of rejection is not well taken.

Claims 11, 13, and 14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shizuko (JP11-241107A) in view of Wang ("Preparation of Pd-Pt Bimetallic Colloids with Controllable Core/Shell Structure"). This ground of rejection is not well taken.

Claim 10 provides:

> 10. A process for producing a ternary metal colloid, said ternary metal colloid comprising metal nanoparticles composed of three different metal elements and having a three layer core/shell structure, the process comprising the steps of:
> producing a solution in which first metal ions are dispersed in a solvent by dissolving a first metal salt into a first solvent, and producing a first colloid solution by reducing the first metal ions;
> providing first metal nanoparticles in the first colloid solution with an activity as a reduction catalyst;
> producing a second metal salt solution by dissolving a second metal salt into a second solvent, and mixing the first metal nanoparticles with the second metal salt solution and reducing second metal ions to form a binary colloid solution;
> providing second metal nanoparticles in the binary colloid solution with an activity as a reduction catalyst; and

producing a third metal salt solution by dissolving a third metal salt into a third solvent, and mixing the second metal nanoparticles with the third metal salt solution and reducing third metal ions.

That is, first metal ions are dispersed in a solvent and then reduced to produce a first colloid solution. First metal nanoparticles having activity as a reducing agent are provided in the first colloid solution. Then a second metal salt is dissolved in a second solvent and first metal nanoparticles are mixed with the second metal salt solution and the second metal ions reduced to form a binary colloid solution. Then second metal nanoparticles having activity as a reducing agent are provided in the binary colloid solution. Then a third metal salt is dissolved in a third solvent and second metal nanoparticles having activity as a reducing agent are provided in the third colloid solution and reduce the third metal ions.

Claim 11 provides:

> 11. A process for producing the ternary metal colloid, said ternary metal colloid comprising metal nanoparticles composed of three different metal elements and having a three layer core/shell structure, the process, comprising the steps of:
>
> producing a first metal salt solution in which two metal ions are dispersed in a solvent by dissolving two metal salts into a first solvent, and producing a colloid solution comprising metal nanoparticles which is composed of two metal elements and has a core/shell structure by reducing the two metal ions in the first metal salt solution;
>
> providing the metal nanoparticles in the first colloid solution with an activity as a reduction catalyst; and
>
> producing a second metal salt solution by dissolving one metal salt different from the two metal salts into a second solvent, and mixing the metal nanoparticles with the second metal salt solution and reducing metal ions in the second metal salt solution.

Shizuko (JP11-241107A) does not teach or suggest this sequence of steps. Shizuko reacts a transition metal ion and a nonionic surfactant which has an ethylene or acetylenic group in a polymeric matrix such as polyethylene, polypropylene, etc. Optionally two or more kinds of transition metal ions intermingle to form a composite. Shizuko does not show this sequence of producing a ternary metal colloid by dispersing first metal ions in a solvent followed by reducing and providing first metal nanoparticles in the first colloid solution; dissolving a second metal salt into a second solvent, and mixing the first metal nanoparticles with the second metal salt solution and reducing second metal ions to form a binary colloid solution and providing second metal nanoparticles in the binary colloid solution with an activity as a reduction catalyst; and then dissolving a third metal salt into a third solvent, and mixing the second metal nanoparticles with the third metal salt solution and reducing third metal ions. Shizuko merely adds a plurality of metal ions to a metal colloid solution. Shizuko is silent about whether or not a colloid should be provided with reducing ability or not. Wang, et al teaches the use of hydrogen as a reducing agent, however, this reference is silent about adding hydrogen to a reduced colloid and with which other metal ions should make contact. The examiner asserts that a combination of Shizuko and Wang, et al renders the instant invention obvious, however, such a combination of Shizuko and Wang, et al is impossible because Wang, et al dos not teach that hydrogen reduces other metals.

With regard to claims 10, 12, the combination of Shizuko and Wang, et al does not teach the sequence of forming first metal ions, then reduce, then apply second metal ions, and then reduce again, then apply third metal ions, then reduce again. With regard to claims 11, 13, 14, the combination of Shizuko and Wang, et al does not teach the sequence of forming a first + second metal ions then reduce, then apply third metal ions, then reduce again.

Claims 15-19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shizuko (JP11-241107A) in view of Wang ("Preparation of Pd-Pt Bimetallic Colloids with Controllable Core/Shell Structure"). This ground of rejection is obviated by the above claim cancellation.

The undersigned respectfully requests re-examination of this application and believes it is now in condition for allowance. Such action is requested. If the examiner believes there is any matter which prevents allowance of the present application, it is requested that the undersigned be contacted to arrange for an interview which may expedite prosecution.

Respectfully submitted,

Richard S. Roberts
Reg. No. 27,941
P.O. Box 484
Princeton, New Jersey 08542
(609) 921-3500
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I hereby certify that this paper is being facsimile transmitted to the United States Patent and Trademark Office (FAX No. (571) 273-8300) on March 10, 2009

Richard S. Roberts
Reg. No. 27,941